

International Technology Centers (ITCs) Search the World to Bring New Technologies to the Field

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The U.S. Army Research, Development and Engineering Command's (RDECOM's) overarching goal is to support the current fight and the Current and Future Force by adding innovative technologies and reducing the size and weight of technological pieces and platforms for Soldiers. With RDECOM comprising 80 percent of the Army's science and technology (S&T) enterprise, it is important that this organization remain on the forefront of technology. To maintain this cutting-edge position, RDECOM's ITCs are constantly searching the globe for state-of-the-art equipment, cooperative opportunities with allied and friendly nations, and both applied and basic research opportunities.

The M93A1 Fox Nuclear, Biological and Chemical Reconnaissance System (NBCRS) vehicle detects, identifies and marks areas of nuclear or chemical contamination, and reports accurate information to supported commanders in real time. The NBCRS can also collect soil, water and vegetation samples for analysis. Hazards to crew members are minimized through the presence of vehicle NBC collective protection and through positive overpressure with heating and cooling for the crew. (U.S. Army file photo.)



The U.S. Army has the lead in bringing forward technologies that will meet Soldier needs and improve capabilities within our own force and those of our coalition partners. The ITCs were established to help meet this objective. Their mission is to find the greatest technology and to leverage partnerships to bring new developments to the field quickly and keep abreast of new research and development (R&D) trends leading to the S&T breakthroughs of tomorrow. The nine ITCs search the world for emerging technologies from international commercial industry, universities and government and military R&D organizations involved in S&T. In addition, they seek out opportunities to meet with foreign S&T sources and work feverishly to develop strong relationships and build partnerships with

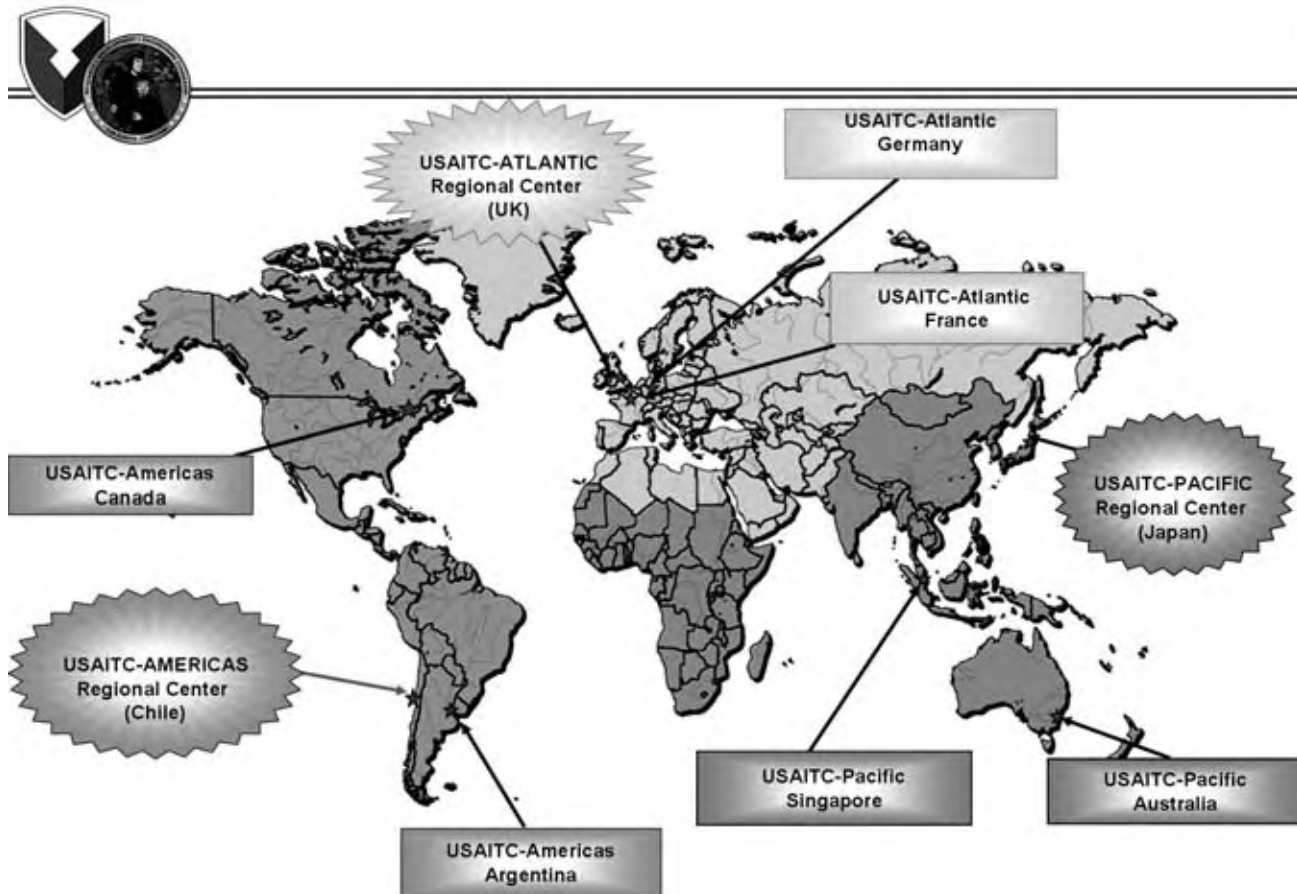
other overseas and domestic U.S. government offices; Research, Development and Engineering Centers (RDECs); and the U.S. Army Research Laboratory (ARL) to support the Army's S&T investment strategy.

Global Search for S&T Developments

The ITC's primary goal is to seek niche capabilities that can't be found domestically or technologies that are superior to our own. The ITCs are looking for "juicy technology" — those exciting innovations that meet the relevant technology needs of our Soldiers in the field and provide the Army a significant return on investment (ROI). The goal is to find and assess technology to provide Army leadership with those developments that reduce Soldier load, increase

deployment speed, enhance the abilities and capabilities of outfitting the Current and Future Force and prevent technological surprise on the battlefield.

The ITCs, as the international technology scouts for the U.S. Army, know where the state-of-the-art technologies are located and/or are being developed. The nine ITCs located throughout the world work through an interconnected network of contacts to fulfill their respective missions. The figure on Page 46 depicts the ITC office locations (United Kingdom (U.K.), Germany, France, Japan, Australia, Singapore, Argentina, Chile and Canada). Many of these offices are collocated with the U.S. Navy's Office of Naval Research and the U.S. Air Force's Office of Scientific Research counterpart technology search teams. This supports a



U.S. Army International Technology Centers (USAITCs)

highly collaborative tri-service relationship, allowing the Army to share information and leads with our sister services. Sometimes the other services are looking for solutions to similar requirements, and the ITCs can collaborate fully on potential solutions. For example, the Navy is looking for alternative power and energy technology solutions for ships while the Army needs the same technology, but at a much smaller scale, weight and size to place on several different tactical wheeled vehicle platforms.

In the event that the ITCs discover or are tipped off about a nascent technology, they can leverage the Foreign Technology and Science Assessment Support (FTAS) program to bring the technology to fruition. This program is designed to provide limited “seed money” to develop technologies that

aren’t yet ready for full funding by the U.S. Army’s RDECs or ARL but are close. The FTAS program provides opportunities for RDEC and ARL researchers to apply for funding to



The XM101 CROWS system integrates the MK19 Grenade Machine Gun, M2 Machine Gun, M240B Medium Machine Gun and the M249 Squad Automatic Weapon. The weapons operate from a larger ammunition supply than that of standard crew-served weapons. With larger combat loads, the weapon is reloaded less, keeping the crew inside the vehicle and less prone to insurgent small-arms fire. (U.S. Army file photo.)

undertake this development until the ITC-discovered technology is sufficiently mature for full funding by the RDECs or ARL.

The ITC Network Concept at Work

Based on the vision of BG Genaro Dellarocco, RDECOM Deputy Commanding General for Systems of Systems Integration (SOSI), key information from the ITC’s global “network,” such as available potential technology solutions to the Army’s current and future materiel requirements, points of contact and updated information on international S&T activities and organizations, will soon be available instantaneously. The ITCs are developing a secure online tool that enables authorized users to have instant access to this information. The updates for new technologies and organizations

entered by the ITCs in the online ITC Network tool will be date-sensitive to ensure authorized users are accessing the latest information. The network will also contain contact information for the U.S.-based international military and government offices the ITCs interact with to achieve their mission objectives, facilitating more efficient and productive technology leveraging for our Soldiers in the field.

The ITC network tool, which will allow for global searches of all technologies in the system at the touch of a button, will be maintained by designated authorized administrators from each ITC and will reside in RDECOM's S&T Enterprise

Management environment. The network will eventually include several added functions for providing summaries of new technology finds to RDECOM technology integrated product teams (IPTs), RDECs, ARL or directly to the Rapid Equipping Force (REF) or Joint Improvised Explosive Device Defeat Organization (JIEDDO) in support of the Army's Current and Future Forces.

To keep on top of Soldier needs, the ITCs hold semiannual conferences to

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discuss the latest requirements from the field and to focus their priorities, including what types of technology the ITCs need to find. They learn what the IPTs, RDECs and ARL are working on, discuss U.S. Army Training and Doctrine Command capability needs and ascertain where the gaps are in S&T programs and where they need to focus their technology searches. From this meeting, they return to their posts around the world with a targeted technology search list. They search for



The Buffalo heavily armored vehicle is being used by the U.S. Army and Marine Corps in Iraq and Afghanistan for route clearing and counter-IED activities. Since their deployment to Iraq in 2003, Buffalo vehicles employed with explosive ordnance disposal teams and engineer units have taken more than 1,000 IED hits without a loss of life. The heavily protected Buffalo is a central element in the U.S. Army's counter-IED "hunter-killer" concept that protects convoys against the threat of mines and IEDs. The vehicle's equipment enables engineers to inspect suspected objects from a safe distance, using a robotic arm and video cameras operated from the relative safety of the protected cabin. Large windows of armored glass provide good visibility to the sides of the vehicle to enable effective operation on route patrols and dealing with suspected IEDs. (U.S. Army file photo.)

technologies in the following broad areas: network, biotechnology, robotics, current operations support, survivability, counter-improvised explosive devices (IEDs)/countermine, supportability/maneuver sustainment, power and energy, enterprise management, nanotechnology and lethality. The goal is to find the best technology anywhere in the world to ensure RDECOM is able to get the right technology at the right time and place for the warfighter.

Challenges

The ITCs strive to ensure that the best Soldiers in the world have the best equipment in the world. To do this, they examine international basic research, applied research efforts, keep abreast of advanced technology development, evaluate nondevelopmental items, commercial-off-the-shelf equipment or technologies that may meet U.S. Army requirements and, if they

do, enable advancement of Army S&T while saving development time and cost wherever possible.

One of the challenges ITC personnel face is false engineering promises. Companies occasionally make exaggerated claims about a particular piece of technology, and those claims that are plausible must be tested. For technology with current operations application, the ITCs forward their technology “finds” to the RDECOM Agile Development Center, the REF and JIEDDO to ensure technology is fully tested in relevant conditions. If the technology meets the requirement, the REF or JIEDDO buy it for expedited delivery to Soldiers in the field.

Another challenge the ITCs face is proving the ROI to the Army for their efforts. The ITCs, with their global presence, can seem costly at

approximately \$9 million per year, especially with long lead times in the acquisition life cycle before the benefit of a piece of technology is evident. The pace of searching for new technologies, sifting through the many leads and then getting them through the assessment and evaluation phases does not always lend itself to instant success stories. However, when the ITCs find a much-sought-after technology, the cost savings can be significant — years in design and production time and millions of dollars. This translates to a more efficient and effective product for Army use.

A third challenge faced by the ITCs is the so-called “not invented here syndrome.” Sometimes the ITCs discover complete systems, components or alternative practices that have the potential to greatly enhance performance of existing systems. However, these

An M109A6 Paladin 155mm Self-Propelled Howitzer, similar to the howitzer depicted here, fired a guided Excalibur projectile a distance of 15 kilometers Sept. 15, 2006, at Yuma Proving Ground (YPG), AZ. The XM982 Excalibur round detonated within 7 meters of its target. Excalibur is the next generation of projectiles being developed for the Army's conventional tube-artillery weapons platforms. (Photo courtesy of the YPG Public Affairs Office.)



discoveries occasionally face skeptics who doubt their usefulness because they originate outside the U.S. To ensure the best technology is available for our troops, it is critical for both the Army research community and the materiel developers to keep an open mind to discoveries from abroad. The ITCs have worked tirelessly to break through the not invented here syndrome by hosting seminars, facilitating visits and encouraging U.S. researchers to dialog with their international counterparts and examine and test their technology. As a result, the ITCs have garnered praise from top Army leadership for their efforts to promote international armaments cooperation.

Successes

The ITCs have enabled win-win situations for the United States and its coalition partners. The equipment they have found and recommended for Armywide integration has saved countless Soldiers' lives and millions of dollars in development costs, and has also proven to be highly effective on the battlefield. One well-publicized piece of equipment that has been brought into the Army's inventory due in part to ITC efforts is the Buffalo, developed in South Africa. The heavily armored Buffalo vehicle is designed to give patrols a closer look at suspected IEDs. The vehicle is taller than a tank and equipped with a robotic arm that has a pitchfork-like hand and a camera for viewing hard-to-reach areas.

Other ITC equipment finds have included the Chemical Detector (U.K.),

the Common Remotely Operated Weapon Station (CROWS) (Australia), the Excalibur (Sweden) and the Fox (Germany). The Chemical Detector is a lightweight chemical agent detector that exceeds the Joint Chemical Agent Detector's requirements for personal

warning and protection. By using this piece of technology from the U.K., the Army saved 4 years and \$330 million in R&D costs. The CROWS is designed to allow Soldiers to shoot from various vehicles while moving under cover. The Army saved 2 years and \$20 million in development costs by adopting this piece of equipment. The Ex-

calibur is a precision-guided, extended-range munition that improves accuracy for the 155mm artillery projectile. This Swedish invention saved the Army \$57 million in R&D costs. The Fox is a type of mobile laboratory that takes air, water and ground samples, and analyzes them instantly for signs of weapons of mass destruction. This invention saved the Army 14 years in development time as well as millions in cost avoidance.

ITCs' Importance

The ITCs are an essential part of the S&T process. In addition to locating and recommending the aforementioned equipment for Armywide use, the ITCs have been integral in providing the best technologies from around the world to both our Soldiers and our allies. The ITCs have raised the capability and interoperability of our troops and have proven to be a driving force in getting S&T developments into the hands of Soldiers quickly.

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The equipment they have found has saved countless Soldier lives as well as saved the Army and taxpayers millions of dollars. By accessing technologies that are already in development overseas, the ITCs are able to meet Soldier needs in an efficient and effective way and free up limited resources for additional R&D and S&T initiatives that address emerging Soldier field requirements.

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